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ALBOMYCIN -- A NEW ANTIBIOTIC

Prof A. Dobrokhtova, Chief Pediatricist,  
Ministry of Public Health USSR  
Prof G. Gauze, Stalin Prize Laureate

Treatment by the combined administration of sulfa drugs, penicillin, and synthomycin and application of measures designed to create conditions which are most favorable for sick children have resulted in a sharp reduction of mortality from pneumonia and dysentery. However, these two diseases still are prominent causes of child mortality. In view of the fact that known methods of treatment are often ineffective, efforts have been made by USSR scientists to find new methods and remedies.

A new originally discovered antibiotic, albomycin, was recently obtained at the Laboratory of Antibiotics, Academy of Medical Sciences USSR, by Professor G. F. Gauze and Senior Scientific Collaborators M. G. Brazhnikova, V. A. Shorin, and S. D. Yudinsev. The technique for its production has been developed and its therapeutic properties investigated. Albomycin is an active antibiotic substance which suppresses the growth of both gram-positive and gram-negative bacteria. It is a white or light-yellow powder which is readily soluble in water. Introduction of high doses of the substance into experimental animals showed that it is devoid of toxic action. Thus, injection of 12 million units per kilogram of weight into mice did not result in any toxic effect. The substance is pharmacologically inert, does not contain histamines, and does not have a pyrogenic effect. Albomycin was tried out on 11 test objects with different experimentally induced infections. It was found to be effective in pneumococcal sepsis of mice. When albomycin was introduced subcutaneously after the animals had been infected intraperitoneally with a great number of lethal doses of pneumococci (up to 500,000), the animals were saved from death.

Albomycin circulates in the organism for a longer time than penicillin, and for that reason single injections of albomycin are more effective. Animal experiments have demonstrated the effectiveness of the new antibiotic with reference to staphylococci that are resistant to penicillin.

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A detailed study of the circulation of albomycin showed that the main quantity of it is eliminated in urine within 6-7 hours. A portion of administered drug enters into combination with the proteins of the blood and is eliminated slowly within 2-3 days. Laboratory investigations confirmed that albomycin has no harmful effect on organs and tissues of animals after prolonged application, and that it also has no toxic effect on peripheral blood. It stimulates the protective reactions of the macroorganism, strengthening the process of phagocytosis. Extensive clinical tests on children younger than one year led to the conclusion that the antibiotic is effective in cases of toxic pneumonia, particularly the acute type with small foci. Detoxication takes place within 3-6 days and temperature drops within 2-5 days. Professor G. N. Speranskiy's clinic noted that albomycin was effective in cases which were not susceptible to treatment with penicillin.

Albomycin was used in the acute stage of dysentery as well as in cases of dysentery complicated with otitis and pneumonia. Not having obtained an improvement of intestinal conditions, we used it exclusively in cases showing complications. The best results were obtained in cases of otitis accompanied by toxicosis. Here, as in pneumonia, the child's well-being improved, the appetite reappeared, and gains in weight were noted. Improvement of local conditions, disappearance of inflammatory changes in the eardrum, and cessation of the flow of pus took place much more slowly. Best effects were achieved in cases of suppurative otitis produced by staphylococci.

In connection with the action of albomycin, the regularities typical of all antibiotics may be observed. In neglected cases of pneumonia which are complicated by pleuritis or multiple sources of suppuration, the action of albomycin is less pronounced. In such cases it is best to use albomycin in conjunction with other antibiotics.

As for secondary reactions, young children occasionally develop a rash which disappears within a few hours. Children older than one year occasionally show a stronger reaction accompanied by a brief sinking of cardiovascular activity. These reactions require further study.

The Pharmacological Committee of the Scientific Medical Council, Ministry of Public Health USSR, has permitted extended use of albomycin for treatment of pneumonia and septic complications of dysentery in children younger than one year. A total of 100,000 to 200,000 units per day are administered subcutaneously. The course of treatment is 7-12 days and may be continued longer, because there is no cumulative toxic effect.

The antibiotic may be used in combination with sulfa drugs, penicillin, streptomycin, synthomycin, and all auxiliary means of nonspecific therapy such as blood transfusion, infusion of plasma, injection of glucose, etc.

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